

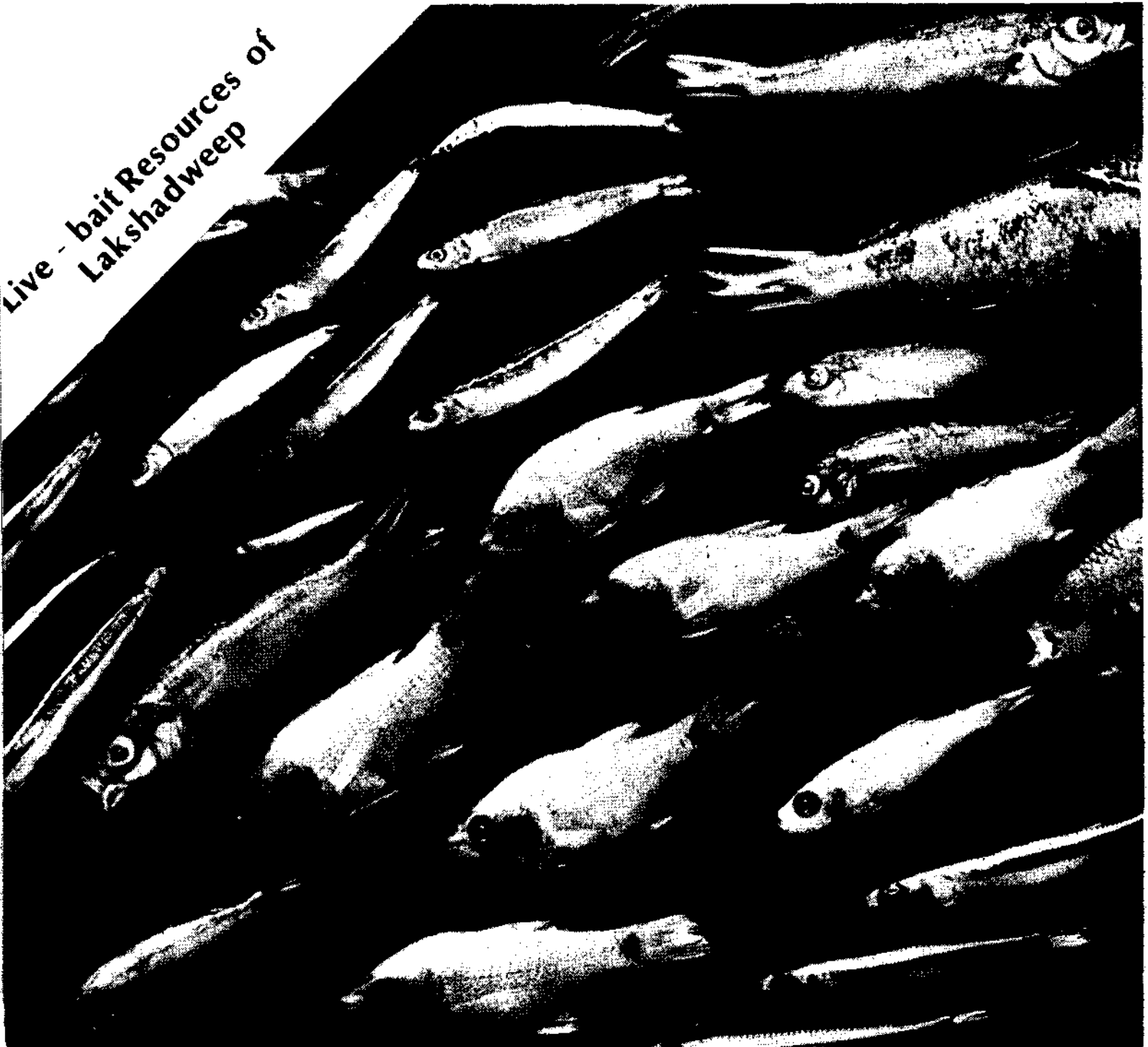


CMFRI newsletter

Number 34

October - December 1986

Live - bait Resources of
Lakshadweep



Live - bait Resources of Lakshadweep

The vast lagoon systems and the shallow areas adjacent to the reefs of the Lakshadweep provide ideal habitat for a variety of tuna bait fishes. Till date focussed studies such as exploratory survey on these non-target species in and around these islands is wanting. CMFRI has initiated a programme to investigate the resources and biology of tuna live-baits in the Union Territory of Lakshadweep.

Pole and line fishing with live-bait is the prime method employed in the Lakshadweep islands for catching skipjack tuna, *Katsuwonus pelamis*. Pole and line fishery essentially involves a double approach, aiming at target species — tunas, and also the non-target species — bait fishes. It has recently been discussed in the FAO meeting of tuna fishery of the Indian Ocean that the major avenue for the bordering, developing nations to exploit the resources of skipjack tuna in their regions without large investments in advanced fishing equipments is through the use of pole and line fishing technique. In India, this method is in vogue in an organised manner only in the Lakshadweep group of islands, which consists of twentyseven islands and a number of sunken banks, open reefs and sand banks. Of these, Minicoy, Agatti, Bangaram, Perumal Par, Suheli Par and Bitra are at present the important islands in terms of production of tunas in the artisanal sector. Despite the fact that the pole and line fishery is still a small-scale activity in these islands, it calls for added attention and impetus since India possesses a vast resource potential of oceanic tunas especially skipjack in her EEZ and contiguous high seas and the planned rational exploitation of these resources



will provide a significant contribution to the national economy.

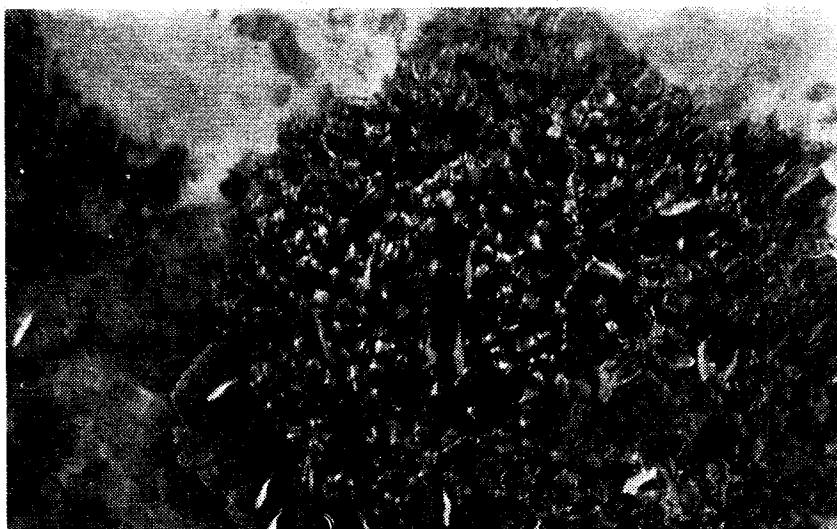
The major constraint associated with the development and expansion of pole and line fishery is the availability and supply of suitable live-bait fishes. The features which make them suitable for tuna fishing are their highly reflective lateral surface, surface-swimming with rapid erratic motion and the

tendency to return to the boat when broadcast. The elongated shape of the body and the length (below 15 cm) facilitates easy handling. They also exhibit hardiness and high survival rate in captivity.

However, none of the species used in the pole and line fishery in the world oceans could be considered as 'perfect species' since some species may be good at initially attracting tunas

but may not be suitable for holding in the tanks on board fishing vessels due to their high initial mortality at the time of capture.

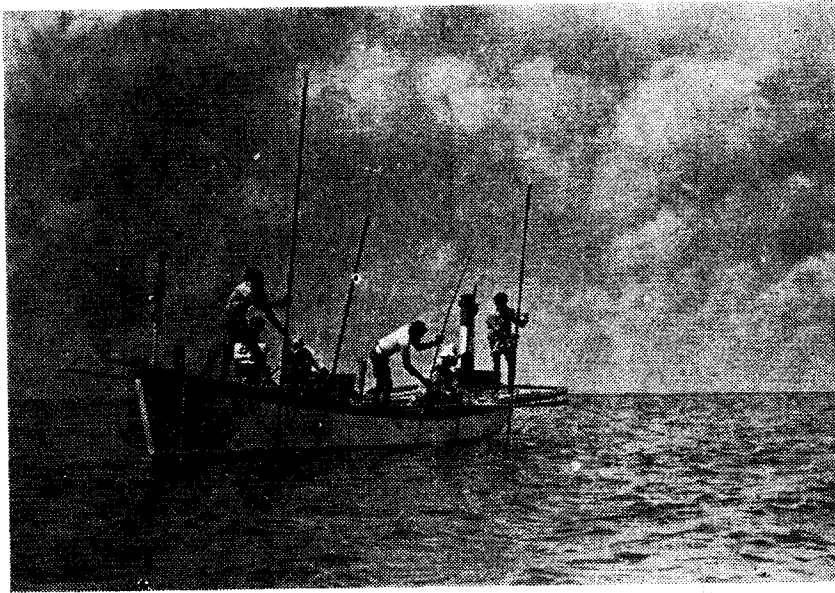
The vast lagoon systems and the shallow areas adjacent to the reefs of the Lakshadweep provide ideal habitat for a variety of tuna bait fishes. Till date focussed studies such as exploratory survey on these non-target species in and around these islands is wanting. Evaluating the principal natural bait fish resources of Lakshadweep islands with respect to their capacity to support the surface fishery for skipjack is of prime importance for recommending specifications and suggesting management implications for the development of their fishery. With this objective in view CMFRI has initiated a programme to investigate the resources and biology of tuna live-baits in the Union Territory of Lakshadweep. The programme envisages to determine the relative abundance and availability of naturally occurring stocks and their behaviour and to conduct tests on their capture, transportation and maintenance through intensive vessel-based surveys using traditional and improvised techniques inside the lagoon and outside reef flat and reef fronts of all the islands of Lakshadweep. A reconnaissance survey covering the above areas was conducted during August-December under the guidance of Dr P. S. B. R. James, Director, CMFRI. Dr P.P. Pillai, Shri G. Gopakumar and Shri K. P. Said Koya, Scientists and Field Assistants participated in the programme with the



A view of resident bait fish colony



The diver locates the bait fish colony



The bait net is held in position at the bait fish colony by means of poles.

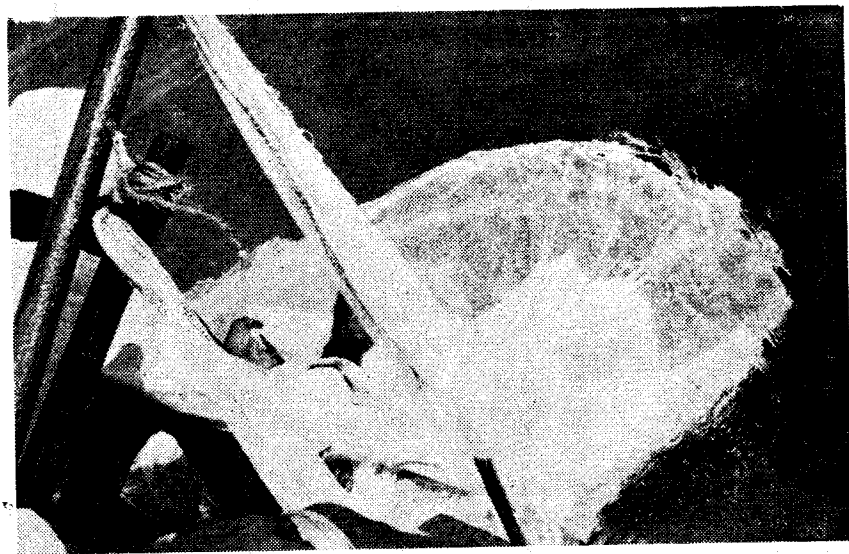
help of expert location divers and local fishermen.

The natural live-bait resources of the Lakshadweep islands are mainly coastal inhabitants with localised distribution and are observed to comprise adults and juveniles of dussumierids (sprats), pomacentrids, apogonids, atherinids and juveniles of caesionids. The sprat, *Spratteloides delicatulus* ('Hondeli') is found to be the extensively exploited live bait fish of the Lakshadweep islands. The survey revealed extensive areas of concentration of this species in dense schools in the clear coastal waters at Minicoy, Agatti, Bangaram, Perumul Par, Suheli Par and Bitra islands. This being a shallow water species is easy to be fished in desired numbers employing encircling type of nets. This species also exhibit a good chumming quality. However, the major constraint in the utilisation of this species is the large mortality at the time of capture, storing in the live-bait tanks and trans-

portation, due mainly to the osmoregulatory stress. It was observed during the survey that *S. delicatulus* is the only bait species currently exploited for tuna fishing by pole and line method in the various islands except Minicoy. Since the fishery is dependent on the availability of this single species, scarcity of the same often acts as a deter-

rant causing abrupt suspension of tuna fishing activities even during peak tuna fishing periods. At Minicoy, even though *S. delicatulus* is the most abundant single species of live-bait exploited for the tuna fishery it constitutes only about 40% of the total bait fish catch. Some of the species other than *S. delicatulus* hold good potential for exploitation.

The survey also indicated that the naturally occurring live-bait resources can be classified into two major groups based on their habitat distribution patterns — (a) resident forms, which are observed in specific habitats mostly associated with live corals, coral sand etc. and complete their life cycles in the same habitats; (b) migrants, which are occasionally recruited into the lagoonal habitat for brief or extended periods, and which may emigrate from the habitat depending on the environmental changes. The chief resident forms are found to be *Chromis caeruleus*, *C. nigrurus*, *Spratteloides delicatulus*,



Net is being hauled



Surrounding net (sprats)



Lift net fabricated at Minicoy

S. gracilis and representatives of apogonids. The major migrants are *Lepidozygus tapetinosoma* and representatives of caesionidae.

Another aspect that emanated from the survey is the total absence of pole and line fishing activity at certain islands such as Kadamat and Kalpeni where exploitable tuna live-bait resources belonging to sprats, spogonids,

caesionids and pomacentrids are located. Initiation and expansion of pole and line fishery in these islands and training fishermen in different islands for utilising unexploited resources of live-baits are suitable propositions to the policy planners and administrators involved in the development of tuna fishing industry in the Lakshadweep islands.

Training Programme in Sampling Design

CMFRI conducted a training programme on sampling techniques for assessment of exploited marine fishery resources during November-December. The ten-day training was exclusively intended to give the fisheries department personnel of the maritime states an exposure to the various sampling techniques available, to help them in organising fisheries surveys. Shri R. Sathyarajan, Director, IFP, inaugurated the programme on 26 November. Certificates were distributed to the participants by Dr M. J. Sebastian, Dean, Fisheries College, Panangad at the valedictory function held on 6 December 1986.

This was the third such training and thirteen officials representing the departments of fisheries of Gujarat, Maharashtra, Karnataka, Tamil Nadu and Pondicherry participated.

Zonal Workshop of FRAD Field Staff

The annual zonal meeting of the Technical Staff engaged in collection of field data for fishery resources assessment was held this year also at different centres during October-November. The technical staff of Kerala, Karnataka and Goa and the officers-in-charge of the research centres situated in the zone namely Karwar, Mangalore Calicut and Vizhinjam and the division heads and scientists of FRA Division met at Cochin during 17-19 November with a view to updating the knowledge on methodologies for collection of field data on marine fish production and species identification.

Chairing the meeting at Cochin Dr PSBR James, Director, CMFRI remarked that survey data played a pivotal role in fisheries research as it formed the basic input for fish stock assessment and that the Institute was paying much stress on this aspect during the Seventh Plan. He felt that the zonal workshops would be a good forum for the scientists and the field staff who are in constant touch with the technological developments for exchange of ideas. In this context he stressed the need for the field staff for involving themselves in the work allotted to them so as to understand the changing trends and shift in fisheries as well as to provide information on the endangered marine animals.

Training Programme in Hatchery Technology for Pearl Oyster

A training programme dealing with various aspects of mass production of pearl oyster in the hatchery system was held at the Tuticorin Research Centre during 27 October to 22 November. Officials of the state fisheries departments and other fisheries organisations participated in the programme.

Staff Research Council Meeting

The 30th meeting of the Staff Research Council of CMFRI was held at Cochin on 27 November to review the progress of the scientific work carried out during the second quarter of the year.

Biheaded Baby Shark landed

A unique biheaded baby shark measuring 290 mm in length and 170 g in weight was recovered from a mother shark by a gillnet off Miani near Porbandar.

Unusual Landings of Cuttlefish

Trawl nets landed very large quantities of cuttlefish *Sepia pharaonis* with some *Sepia aculeata*, *Sepiella* spp. and *Loligo duvaucelli* at Kakinada during the first fortnight of December. This was reported by Shri C.V. Seshagiri Rao, Senior Technical Assistant at Kakinada. Usually small quantities of 2-4 kg per boat of squids are landed as incidental catches by mechanised boats operating trawl nets. *Sepia pharaonis* is the biggest among cuttlefish with conspicuous dark bands on the dorsal side of the body. Females are more muscular and robust than the males. Individual fish measuring up to 275 mm have been recorded in the above landings. The major part of the bycatch

was from the trawling grounds of *Metapenaeus monoceros* at a depth of 50-60 m north east of Kakinada coast. The fresh *S. pharaonis* were sold at Rs. 13-15 per kg and the fillets at Rs. 45-50 per kg during the above season.

K V K

Seven training courses on scientific farming of prawns and fishes benefiting 80 farm women and 40 farm men were organised. Other training programmes included four courses on live-stock management, post-harvest technology of prawn and fish, preparation of fish pickles, duck farming, pond making and sluice fixing. Under the new 20 point programme of the Prime Minister a one-day training on paddy cultivation was held in which 23 farm women participated. Special lectures on nutrition were delivered in connection with the World Food Day celebrations.



A demonstration at KVK on preparation of fish cutlets by Shri K. Balachandran, Scientist, CIFT

WORLD FOOD DAY CELEBRATED

CMFRI participated in the World Food Day Celebrations organised by various agencies at different centres on 16 October. This year the theme was 'Fishermen and Fishing Community'.



Dr PSBR James, Director, CMFRI delivering the inaugural address in the public meeting at Malipuram organized by MPEDA in which all the fisheries organizations in Cochin participated.



Shri Amar Singh Waghela, Minister of State for Prohibition, Excise, Labour & Employment being taken around the pavillion put up by Veraval Research Centre in the exhibition organized by the Gujarat Fisheries Department, at Veraval.



Shri P. T. Meenakshisundaram, Scientist S-3 at Madras receiving the 'Best Stall' award from Thiru K. Rajaram, Minister for Industries, Tamil Nadu in the exhibition organized by Tamil Nadu State Fisheries Department.



Women being trained at KVK in the preparation of nutritious recipes with leafy vegetables.

T.T.C.

Three officials of Fisheries Department, West Bengal were given 10-day training in prawn farming.

Lab-to-land Programme

Under phase IV of the programme the prawn culture ponds of all the 85 beneficiaries were stocked with *P. indicus* seed.

A ready-to-install sluice box costing about Rs. 200 designed by KVK for use in prawn culture ponds of up to 0.4 ha were distributed to 40 prawn farmers and their performance has been excellent.

A revised edition of Grow More Prawns prepared by Shri K.N.R. Kartha and Shri P. Karunakaran Nair and a book on

Training Programmes of KVK were published.

VISITORS

Cochin

Shri Manivannan, IAS, Director of Fisheries, Tamil Nadu.

Tuticorin

Dr Fred P. Meyer, National Fisheries Research Centre, Wisconsin, USA.

Dr Val Mozainis, USDA/OTCD, Washington.

Dr Harry Dupres, Fish Farming Experimental Station, USA.

Dr Les Torrains, Agricultural Experiments Station, University of Ark, USA.

Mandapam

Shri K. G. Sawrikar, Member, Maharashtra Council for Agricultural Research and Education.

Prof. Shirely L. Arora, Professor of Biology, California, State University.

Minicoy

Shri V. M. Sudheeran, Speaker Kerala Legislative Assembly, 19 December.

Mangalore

Mr. Urbe Yorla Woli, FAO Fellow, Fisheries Unit, College of Natural Resources Environment Studies, University of Juba, Sudan.



Dr S. Z. Qasim, Secretary, Department of Ocean Development with Dr PSBR James, Director, Scientists of CMFRI in cruise during his visit to FORV Sagar Sampada, at Goa on 24 October

Veraval

Prof. N. D. Chhaya, Deputy Commissioner of Fisheries, GR-ASRI, Govt. of Gujarat.



The Indo-US Subcommittee Team on Aquaculture consisting of Dr Fred P. Meyer, Dr Valdis E. Mezainis, Dr Harry Dupree and Dr C. L. Torrains visited CMFRI from 5-9 October to discuss pre-project proposals of bilateral interest in identifying areas in aquaculture. Dr Kamat, ADG (Fisheries) ICAR was also present during the visit

The students on study tour from the following institutions visited Cochin/other centres.

Farook College, Calicut; NSS College, Trivandrum BCM College, Kottayam; Inland Fisheries Technology Centre, Barrackpore; CIFE, Bombay; Catholice College, Pathanamthitta; Dept. of Zoology, Kerala University, St. Xavier's College, Trichy; Post-graduate Department of Zoology, Madras University; Muslim Educational Society, Madras; Sivaji University, Kolapur, Andhra University, Krishnagiri; College of Fisheries, Ratnagiri.

Engagements

Dr. PSBR James, Director, attended the following meetings: ICAR Directors' Conference at New Delhi, 30-31 October.

ICAR Scientific Panel Meeting at New Delhi, 6-7 November.

Meeting to brief the Honourable Minister for Agriculture and Director General, ICAR about gains to the country from his visits abroad, 13 November.

Shri M. S. Muthu, Scientist S-3 and Shri K. Asokakumaran Unnikrishnan, Senior Training Assistant attended the Seminar on Brackishwater Prawn Farming organised by MPEDA and Indian Bank at Cannanore and presented papers entitled prawn hatchery technology in India—present status and future prospects and prospects of prawn culture technology in India, 23 October.

Dr M. M. Thomas, Chief Training Officer, KVK/TTC attended the monthly workshop of Kerala Agricultural Extension Programme of Ernakulam at the Rice Research Station, Vyttila, 25-26 November.

Shri P. Karunakaran Nair, Senior Training Assistant attended the above workshop at Perumbavoor, 28-29 October.

Shri R. Marichamy, Scientist S-2, participated in Fourth All India Symposium on Estuarine Biology, organised by CAS in Marine Biology, Annamalai University at Portonovo and presented a paper on prawn farming in the tidal flat of Kallar estuary, 26-28 October.

Shri M. H. Dhulkhed, Scientist S-3 attended the first consultative group meeting of the Mormugoa Zone of Fishery Survey of India at Mormugoa, 28 November.

Shri M. H. Dhulkhed, Scientist S-3, Shri K. Y. Telang and Dr V. S. Kakati, Scientist S-1 participated in the Seminar on prawn farming and Integrated

Rural Development in Uttar Kannada district, Karwar, 9-10 December.

Kumari Jancy Jacob Scientist S-1 participated in the national seminar on Extension Education in Human Resource Development, organised by Indian Society of Extension Education, ICAR and Andhra Pradesh Agricultural University and presented a paper entitled "Extension education in human resource development with reference to marine fisheries sector" at Hyderabad, 14-17 November.

Deputation Abroad

Expert Consultation on Stock Assessment of Tunas

Dr PSBR James, Director and Dr P. Parameswaran Pillai, Scientist S-3, CMFRI attended the meeting of the FAO Expert Consultation on Stock Assessment of Tunas in the Indian Ocean held at Colombo, Sri Lanka from 4-8 December. The meeting was attended by 35 participants from 17 countries. The meeting reviewed the national fisheries and research programmes and the state of exploitation of various species groups. Dr James presented two papers on research on tunas in India and the stock assessment of tunas in seas around India and Dr Pillai presented a review paper on the national tuna fishery in India.

The coastal countries which operate traditional fisheries expressed serious concern over the possible effects of the recent purse-seine fisheries catches upon the catch and catch rates of their artisanal fisheries. Experiments being difficult and dangerous to conduct at the level of fisheries it was suggested

that computer simulation models using fishery and tagging data could help to answer the question of interaction. Tuna tagging has been conducted in all oceans except in the Indian ocean and the committee recommended the development of tuna tagging programme of this region. The committee also suggested experimentation with fish aggregating devices for capture of tunas and examining the possibility of developing suitable market for tuna in India to be incorporated in future plans.

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Dr R. S. Lal Mohan, Scientist S-2, was deputed to China for attending a workshop on Biology and conservation of Platanistoid Dolphins held at Wuhan, China from 26 October to 11 November.

Dr A. D. Diwan, Scientist S-2 has been deputed to participate training in bio-assay procedures and experimental design on toxicity studies at the University of Washington, USA under FAO/UNDP programme for six months from 27 December.

Appointments

Shri Rakesh C. Pancholy as Scientist S-1 at Cochin, 8 Dec. Shri Vanvi Jayantalal Dayabai as Field Assistant (T-1) at Veral, 29 October.

Shri Udaya V. Arghekar as Field Assistant (T-1) at Karwar 20 November.

Shri Satyanarayana V. Pai as Field Assistant (T-1) at Karwar 25 November.

Shri Ramesh V. Kamble as Field Assistant (T-1) at Karwar 28 November.

Smt. P. M. Geetha as Museum Assistant (T-1) at Cochin, 1 December.

Shri N. Ramamoorthy as Museum Assistant (T-1) at Mandapam Camp, 11 December.

Shri K. C. Purushothaman as Field Assistant (T-1) at Cochin, 15 December.

Shri Tomy Prince as Junior Clerk (Telephones) at Cochin, 4 December.

Shri M. Velu rejoined as Senior Clerk at Cochin after completion of deputation period, 17 November.

Shri P. J. Davis as Assistant at Cochin, 11 November.

Shri T. V. Haridasan as S.S. Grade I (Fieldman) at Calicut, 8 December.

Shri K. G. Baby, Deckhand reverted and posted as S.S. Grade I (Fieldman) at Cochin as requested for by him.

Shri V. Chemutty, Assistant as Superintendent on promotion at Cochin, 14 October.

Shri S. K. Gurusamy, S. S. Grade I (Watchman) rejoined at Tuticorin on completion of deputation, 21 November.

Shri V. K. Suresh, as S. S. Grade I (Lab. Attendant) at Cochin, 30 December.

Shri C. K. Sivadas as Junior Clerk at Cochin, 11 November

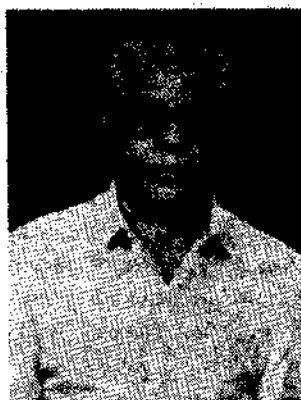
Transfers

Shri K. P. Said Koya, Scientist S-1 from Cochin to Agatti.

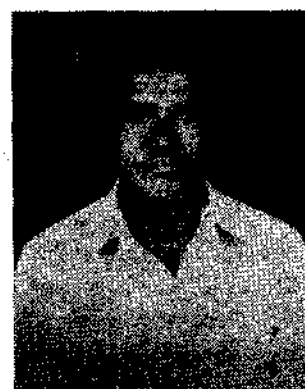
Dr. N. Ramachandran, Scientist S-1 from Karwar to Cochin.

Retirements

Shri D. D. Panicker, Administrative Officer on superannuation, 31 December.



Shri D. D. Panicker



Shri K. T. Malsekar

Dr C. Thankappan Pillai, Technical Assistant (T-II-3) to take up the post of Assistant Professor in Fish Pathology in the College of Fisheries, Panangad under Kerala Agricultural University on deputation basis, 30 October.

Shri S. Hanumantharaya, Junior Technical Assistant (T-2) on inter-institutional transfer to I.I.H.R., Bangalore, 6 December.

Shri M. B. Renukumar, Field Assistant (T-1) on resignation, 16 December.

Hindi Day at CMFRI

The Hindi Day as proposed in the Annual Implementation Programme for 1986-87 in respect of Central Government Offices located in Region C was celebrated at CMFRI on 19 November. The purpose of the Day was to create consciousness and accelerate the use of Hindi as official language. Competitions on essay writing, drafting, speech and music were conducted to mark the occasion and the following are the winners of the first and second prizes.



Shri P. C. Joseph receiving the prize from Shri M. R. Nair, Director, CIFT

Essay (Bharat ki Rajbhasha)

Shri D. B. S. Sehara, Scientist S-2 and Smt. E. Sasikala, Junior Clerk.

Drafting (letter)

Shri M. B. Seynudeen and Shri P. P. Pavithran, Punch Card Operators.

Elocution (Rajbhasha Hindi)

P. C. Joseph and Shri T. N. P. Kurup, Junior Clerks.

Music

Shri C. S. Sasidharan, Technical Assistant and Smt. P. V. Mary, Senior Clerk.

A meeting presided by Dr P.S.B.R. James, Director, CMFRI, was held in the afternoon. Shri M. R. Nair, Director, CIFT who was the Chief Guest gave away the prizes.

Ph.D. Awarded

Shri G. Sudhakara Rao, Scientist S-2, has been awarded Ph.D. in Zoology by the Andhra University for his thesis entitled Studies on the biology and fishery of brown prawn *Metapenaeus monoceros* (Fabricius 1978) along the Kakinada coast. Shri Sudhakara Rao worked under the supervision of Dr B. Krishnamoorthy, Emiratus Scientist, CMFRI and Prof. K. Hanumantha Rao, Andhra University.



Shri Sudhakara Rao



Shri Subhash Soni

Shri Subhashchandra Soni, Senior Research Fellow at CAS has been awarded Ph.D. by the Cochin University of Science & Technology for his thesis entitled Pathological investigation in penaeid prawn. Shri Soni worked under the supervision of Dr P. Vedavyasa Rao, Scientist S-3 at CMFRI.

Weddings

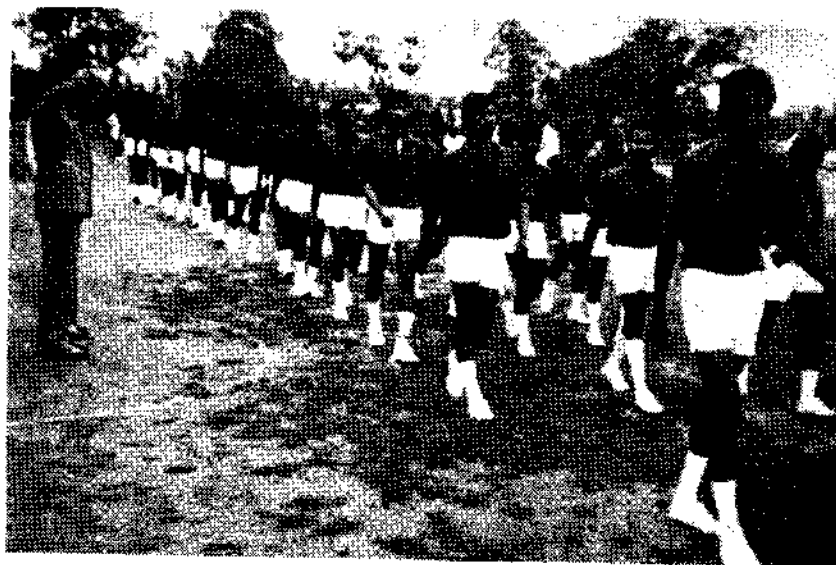
Shri Ravikumar Fotedar, Scientist S-1 married Kum. Seema Malhotra at New Delhi, 9 October.

Shri K. Purushothaman Kani, Training Assistant at Narakkal married Kum. C. Nirmala at Nanniyodu, Trivandrum, 27 November.

SPORTS

ICAR Zonal Meet

The VI ICAR Zonal Sports Meet was held this year at Rajamundry during 4-9 October. The Meet was hosted by the Central Tobacco Research Institute. CMFRI fielded a contingent of 45 sportsmen and won runner-up trophy for Kabadi and Athletics. The Kabadi team consisting of S/Shri M. Radhakrishnan (Captain), Pon. Siraimetan (Vice Captain), H. S. Shivanna, L. K. Suvarna, R. Uchimahali, B. Bavanandam, K. Muthuvel, R. Sundar, M. Alfred and N. Ashokkumar met the mighty IIHR team. The athletic contingent led by Shri V. Achutha Rao, secured 19 points to the runner-up trophy. Shri Rao winning 400 m race and second position in 100 and 200 metres. Shri P. Poovannan and Shri M. Alfred secured second position



CMFRI contingent in the march-past.

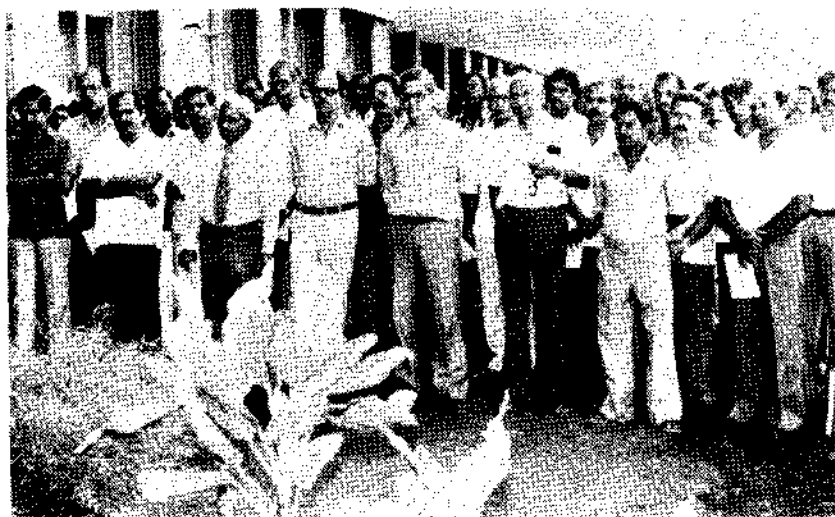
in Long Jump and Polevault respectively. The relay team represented by S/Shri. Atchutha Rao, Poovannan, A. Kumar and G. K. Rajan won the second position in 4 x 100 m.

Quami Ekta Week Celebrated

The Quami Ekta Week was celebrated from 19-25 November at the Headquarters and other Centres of CMFRI. As a part of the celebration the members of the staff took National Integration Pledge on 19 November. The staff of the Mandapam Regional Centre took the pledge in the presence of His Holiness Swami Pranavananda of Ramakrishna Mission. An elocution competition for school children on the theme was held followed by cultural programme by the children of the staff and local school.

Staff Welfare

A tiffin room Type B has been opened at Calicut Research centre which was inaugurated by Dr PSBR James, Director on 15 October.



The staff at Headquarters taking the National Integration pledge



Sri A. P. Lipton, Officer-in-Charge, Veraval Research Centre welcomes the gathering on the occasion of Quami Ekta Week celebrations held at Veraval. Seated are Shri Chamanlal Khapandi, president of Trawlers Association, Veraval and Prof N. D. Chhaya, Deputy Commissioner of Fisheries, Gujarat.

Sri Dhillon, Union Minister for Food and Agriculture visiting the CMFRI Stall with the Chief Minister of Kerala in the XIV General Board of Fisheries Meeting Exhibition at Trivandrum on 26 September.